

REMARKS

Claims 1-90 were pending. Claims 13-14, 16-18, 20-21, 23-26, 28, 30-31, 33-35, 37-38, 40-43, 45, 58-59, 61-63, 65-66, 68-73, 75-76, 78-80, 82-83, 85-88, and 90 stood withdrawn from consideration. Claims 1-12, 15, 19, 22, 27, 29, 32, 36, 39, 44, 46-57, 60, 64, 67, 74, 77, 81, 84, and 89 stood rejected. Claims 1-90 have been cancelled. Claims 91-152 were added. Claims 91-152 remain in the application.

The application stands subject to a restriction requirement as containing claims directed to the patentably distinct species:

- I. Species of Fig. 2;
- II. Species of Fig. 3;
- III. Species of Fig. 4.

Applicant has provisionally elected Species I, with traverse.

In the amended claims, Claims 91-120 are generic. Claims 121-130 are directed to Species I. Claims 131-152 are directed to Species II-III and, in view of the restriction requirement, are treated herein as being withdrawn.

The added claims are supported by the application as filed, notably, the original claims and as noted below.

The original Generic claims and claims directed to Species I stood rejected under 35 U.S.C. 102 as being anticipated by US 6282317 to Luo et al.

Cancelled Claim 1 stated:

1. A system for modifying an image having pixels,
comprising:
means for automatically identifying a main subject of the
image, and
means for altering pixel values to emphasize said main
subject.

In relation to Claim 1, the rejection cited Luo, col. 6, line 60 to col. 8, line 23; Fig. 8; col. 6, line 60 to col. 9, line 31; and col. 11 to col. 12. In relation to independent Claims 12 and 29, the rejection cited Luo, col. 14 to col. 16; col. 15, lines 27-57; col. 7, lines 8-47; and col. 15 to col. 17.

The rejection also stated, in relation to Claim 1:

'note that segmentation is to identify a main subject of the image and the segmentation is automatically conducted'

and

'note that the segmentation is inherently emphasizing the main subjects from the background image and is necessary to altering pixel values of the original image such as scene image'.

Claim 91 states:

91. A method for modifying an image having pixels, comprising the steps of:
automatically identifying a main subject of the image, and
automatically altering pixel values of said image to
emphasize said main subject, said altering following said identifying.

Claim 91 is supported at page 5, lines 22-26; page 16, lines 23-25.

Claim 91 requires automatically altering of pixel values of the image and that the automatically altering follows the identifying. As the rejection noted, the identifying is inclusive of segmentation. (Also note Claim 92, which requires that the identifying further comprises segmenting the image into regions.) Since Claim 91 requires that the altering follows the identifying, any inherent emphasizing by segmentation is prior to and in addition to the altering required by the claimed invention. Claim 91 also requires that the altering is of the pixel values of the image. This contrasts with Luo, which discloses conversion of a list into a belief map having different brightnesses in different regions. (See Luo, column 15, lines 27-57)

Claims 92-105 are allowable as depending from Claim 91 and as follows.

Claims 92-93 state:

92. The method of Claim 91 wherein said identifying further comprises segmenting said image into regions.

93. The method of Claim 92 wherein said identifying further comprises generating a main subject belief map of said regions.

Claims 92 and 93 require that the altering of the pixel values of the image follows segmenting and generating a belief map, respectively.

Claims 94-97 state:

94. The method of Claim 91 wherein said altering pixel values further comprises altering pixel color saturation.

95. The method of Claim 91 wherein said altering pixel values further comprises altering pixel hue.

96. The method of Claim 91 wherein said altering pixel values further comprises altering pixel luminescence.

97. The method of Claim 91 wherein said altering pixel values further comprises altering pixel blur.

The rejection stated, in relation to original claims having similar features:

'As to claims 15, 19, 22, and 27, Luo further discloses the steps of computing saturation, luminance (brightness), hue, and blur (contrast of texture) for each pixel and altering it according to associated belief values (col. 6 lines 51-57, col. 8 line 40-col. 9 line 31, col. 15-17).'

Unlike the claims, Luo does not disclose altering saturation, luminance, hue, and blur in an altering step that follows identification of a main subject. Luo instead uses features, such as color, brightness, and texture, in the identification of regions. (See Luo, Fig. 2; col. 7, lines 9-10; col. 7, lines 46-47; col. 8, lines 2-8; col. 6, lines 51-57; col. 8, line 40-col. 9, line 31.) In identifying features, Luo produces a list of segmented regions ranked in belief order. The list can be converted into a map in which brightness of the regions shows belief order. (Luo, col. 15, lines 29-31; col. 3, line 66 to col. 4, line 4. The map can be output. Luo, col. 15, lines 40-44; col. 17, lines 1-3. See col. 15-17 generally.) The map remains part of the identification step. For example, Luo states:

'However, a binary decision, when desired, can be readily obtained by applying an appropriate threshold to the belief map.' (Luo, col. 15, lines 39-41. Also see col. 15, lines 26-29; col. 15, lines 41-43)

In contrast, in Claim 1, pixel values of the image itself are altered following the identification of the main subject.

Claims 100-104 state:

100. The method of Claim 91 wherein said altering further comprises desaturating the pixels that are not a part of said main subject.

101. The method of Claim 100 wherein said desaturating further comprises:

calculating the luminance values for the pixels that are not a part of said main subject, and

replacing the color values of the pixels that are not a part of said main subject with respective luminance values.

102. The method of Claim 91 wherein said altering further comprises enhancing saturation of the pixels that are a part of said main subject.

103. The method of Claim 91 wherein said altering further comprises inverting the pixel hue values of the pixels that are a part of said main subject.

104. The method of Claim 91 wherein said altering further comprises inverting the pixel hue values of the pixels that are not a part of said main subject.

Claims 100-104 all relate to the altering of pixel values of one of the properties discussed in relation to Claims 94-97 and are allowable on the same grounds as those claims.

Claims 106-120 are supported and allowable on the same grounds as Claims 91-105.

Claim 121 states:

121. A method of modifying an image having pixels, comprising the steps of:
automatically generating one or more belief values, each said belief value being associated with one of a plurality of regions of the image, said belief values each being related to the probability that the associated region is a main subject of the image;
following said generating, automatically altering pixel values in said plurality of regions of said image, in accordance with said associated belief values.

Claim 121 is supported and allowable on the grounds like those discussed above in relation to Claim 91. Similar to Claim 91, Claim 121 requires automatically altering pixel values of the image, following a step in which belief values are generated.

Claims 122-125 are allowable as depending from Claim 121 and on grounds discussed above in relation to Claims 94-97.

Claim 126 states:



126. A method of modifying an image having pixels, comprising:

automatically generating a main subject belief map containing values indicating the location of a plurality of regions in the image, said main subject belief map containing at least a first belief value associated with one of said plurality of regions, said belief values being related to the probability that the associated region is a main subject of the image; and

automatically altering pixel values in said plurality of regions of said image, in relation to said associated belief values, said altering following said generating.

Claim 126 is supported and allowable on the grounds like those discussed above in relation to Claim 91. Similar to Claim 91, Claim 126 requires automatically altering pixel values of the image, following a step in which a belief map is generated.

Claims 127-130 are allowable as depending from Claim 126 and on the grounds discussed above in relation to Claims 94-97.

Applicant requests that the restriction requirement be withdrawn and that Claims 131-152, directed to Species II-III, be allowed along with the Generic claims and claims directed to Species I on the grounds discussed above in relation to the Generic claims.

It is believed that these changes now make the claims clear and definite and, if there are any problems with these changes, Applicants' attorney would appreciate a telephone call.

In view of the foregoing, it is believed none of the references, taken singly or in combination, disclose the claimed invention. Accordingly, this application is believed to be in condition for allowance, the notice of which is respectfully requested.

Respectfully submitted,

Attorney for Applicant(s)
Registration No. 30,700

Robert Luke Walker/amb
Rochester, NY 14650
Telephone: (585) 588-2739
Facsimile: (585) 477-1148